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EXAMINER	
HINZE, LEO T	

ART UNIT	PAPER NUMBER
2854	

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

CT

Office Action Summary	Application No.	Applicant(s)	
	09/933,320	MICHAELIS, A. JOHN	
	Examiner	Art Unit	
	Leo T. Hinze	2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4-7, 9-17, 19-22 and 24-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridon, US 4,126,854 (Sheridon) in view of Jacobsen et al., US 6,445,489 (Jacobsen) and Koshimizu et al., US 5,566,012 (Koshimizu).

a. Regarding claim 1:

Sheridon teaches a twisting ball panel display, including: a method of imaging electronic paper, the method comprising: providing a focused light source (col. 7, lines 20-21) structured to emit a light beam; positioning an electrode grid (10', Fig. 7) in front of the focused light source; positioning a non-liquid crystal electrostatic display cell layer (4, Fig. 7) between the back plane electrode grid and the focused light source; positioning a photoconductive layer (60, Fig. 7) between the non-liquid crystal electrostatic display cell layer and the focused light source; positioning a front plane electrode grid (12', Fig. 7) between the photoconductive layer and the focused light source, the front plane electrode grid being transparent to the light beam; generating an electrical potential

between the front plane electrode grid and the back plane electrode grid; and emitting the light beam from the focused light source while the electrical potential between the front plane electrode grid and the back plane electrode grid is being generated (col. 7, lines 16-25).

Sheridon does not teach: positioning a photoconductive layer between the back plane electrode layer and the electrostatic display cell layer; moving the light beam from the focused light source with respect to the photoconductive layer; front and back plane electrode layers.

Jacobsen teaches an electrophoretic display and system for addressing such a display, including: front and back plane electrode layers (12, 16, Fig. 1); a photoconductive layer (12, Fig. 1); and electrophoretic layer; a light source (10, Fig. 1) to activate the photoconductive layer and create an image on the electrophoretic layer; that the electrode addressing system reduces cost compared to active matrix addressing schemes (col. 1, lines 15-63; col. 1, lines 55-60).

Koshimizu teaches: an optically addressed display device, including a laser (16, 22, Fig. 4) which scans (col. 8, lines 21-22) a light modulating element (1, Fig. 3) through a photoconductive element (2, Fig. 3), thereby forming a static image; that such a system is advantageous for creating a high-speed display which is clear and easy to read, thereby increasing the comfort of the user (col. 1, lines 49-51, lines 55-56).

It has been held that rearrangement of parts is not sufficient by itself to patentably distinguish over the prior art. See MPEP §2144.04

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sheridon by replacing the electrode grids with electrode layers, because Jacobsen et al. teach that electrode layers reduce cost compared to active matrix addressing schemes.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to additionally modify Sheridon to position the photoconductive layer between the front electrode and the electrostatic display cell layer, because one having ordinary skill in the art would recognize that such an change in the arrangement of parts would not change the functionality of the apparatus, and such a change would eliminate the requirement of a photoconductive layer that is transparent to visible light.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to additionally modify Sheridon to scan the light source across the display device, because Koshimizu teaches that such a system is advantageous for creating a high-speed display which is clear and easy to read, thereby increasing the comfort of the user, and one skilled in the art would recognize that scanning a single light source may further reduce cost from the addressable electrode matrix of Sheridon and the addressable light matrix of Jacobsen.

b. Regarding claim 16:

Sheridon teaches a twisting ball panel display, including: a method of imaging electronic paper, the method comprising: providing a focused light source (col. 7, lines 20-21) structured to emit a light beam; positioning a back plane electrode grid (10', Fig. 7) in front of the focused light source; positioning a non-liquid crystal electrostatic display cell layer (4, Fig. 7) between the back plane electrode grid and the focused light source; positioning a photoconductive layer (60, Fig. 7) between the non-liquid crystal electrostatic display cell layer and the focused light source; positioning a front plane electrode grid (12', Fig. 7) between the photoconductive layer and the focused light source, the front plane electrode grid being transparent to the light beam; generating an electrical potential

between the front plane electrode grid and the back plane electrode grid; and emitting the light beam from the focused light source while the electrical potential between the front plane electrode grid and the back plane electrode grid is being generated (col. 7, lines 16-25).

Sheridon does not teach: positioning a photoconductive layer between the back plane electrode layer and the electrostatic display cell layer; moving the light beam from the focused light source with respect to the photoconductive layer; front and back plane electrode layers.

Jacobsen teaches an electrophoretic display and system for addressing such a display, including: front and back plane electrode layers (12, 16, Fig. 1); a photoconductive layer (12, Fig. 1); and electrophoretic layer; a light source (10, Fig. 1) to activate the photoconductive layer and create an image on the electrophoretic layer; that the addressing system reduces cost compared to active matrix addressing schemes (col. 1, lines 15-63; col. 1, lines 55-60).

Koshimizu teaches: an optically addressed display device, including a laser (16, 22, Fig. 4) which scans (col. 8, lines 21-22) a light modulating element (1, Fig. 3) through a photoconductive element (2, Fig. 3), thereby forming a static image; that such a system is advantageous for creating a high-speed display which is clear and easy to read, thereby increasing the comfort of the user (col. 1, lines 49-51, lines 55-56).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sheridon by replacing the electrode grids with electrode layers, because Jacobsen et al. teach that electrode layers reduce cost compared to active matrix addressing schemes.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to additionally modify Sheridon to scan the light source across the display device, because

Koshimizu teaches that such a system is advantageous for creating a high-speed display which is clear and easy to read, thereby increasing the comfort of the user, and one skilled in the art would recognize that scanning a single light source may further reduce cost from the addressable electrode matrix of Sheridon and the addressable light matrix of Jacobsen.

c. Regarding claim 31:

Sheridon teaches a twisting ball panel display, including: an apparatus for imaging electronic paper including a photoconductive layer and a non-liquid crystal electrostatic display cell layer adjacent the photoconductive layer, the apparatus comprising: a switchable voltage source (19, Fig. 7); a front plane electrode grid (10', Fig. 7) electrically connected to the switchable voltage source; a back plane electrode grid (12', Fig. 7) electrically connected to the switchable voltage source; a focused light source (col. 7, lines 20-21) positioned to emit a light on each of a plurality of selected locations of the front plane electrode grid; and a controller (a controller is inherent in Sheridon, as the voltage and light source are coordinated to make a coherent image) operatively coupled to the switchable voltage source and the focused light source, the controller causing the switchable voltage source to produce an electrical potential between the front plane electrode grid and the back plane electrode grid, the controller causing the focused light source to emit the light beam from the focused light source while the electrical potential between the front plane electrode grid and the back plane electrode grid is being generated.

Sheridon does not teach: positioning a photoconductive layer between the back plane electrode layer and the electrostatic display cell layer; front and back plane electrode layers; the

controller causing the light to move with respect to the photoconductive layer and to each of the plurality of selected locations on the front plate electrode.

Jacobsen teaches an electrophoretic display and system for addressing such a display, including: front and back plane electrode layers (12, 16, Fig. 1); a photoconductive layer (12, Fig. 1); and electrophoretic layer; a light source (10, Fig. 1) to activate the photoconductive layer and create an image on the electrophoretic layer; that the addressing system reduces cost compared to active matrix addressing schemes (col. 1, lines 15-63; col. 1, lines 55-60).

Koshimizu teaches: an optically addressed display device, including a laser (16, 22, Fig. 4) which scans (col. 8, lines 21-22) a light modulating element (1, Fig. 3) through a photoconductive element (2, Fig. 3), thereby forming a static image; that such a system is advantageous for creating a high-speed display which is clear and easy to read, thereby increasing the comfort of the user (col. 1, lines 49-51, lines 55-56).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sheridon by replacing the electrode grids with electrode layers, because Jacobsen et al. teach that electrode layers reduce cost compared to active matrix addressing schemes.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to additionally modify Sheridon to scan the light source across the display device, because Koshimizu teaches that such a system is advantageous for creating a high-speed display which is clear and easy to read, thereby increasing the comfort of the user, and one skilled in the art would recognize that scanning a single light source may further reduce cost from the addressable electrode matrix of Sheridon and the addressable light matrix of Jacobsen.

d. Regarding claims 2 and 17, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1 and 16 above. Koshimizu also teaches stepping the focused light source across the electronic paper (col. 8, lines 21-22).

e. Regarding claims 4, 19 and 32, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1, 16 and 31 above. Jacobsen also teaches wherein providing a focused light source comprises providing a laser device ("lasers", col. 6, lines 38-32).

f. Regarding claims 5 and 20, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1 and 16 above. Jacobsen also teaches wherein providing a focused light source comprises providing an invisible ray source ("infrared", col. 6, lines 28-40; col. 7, lines 14-16).

g. Regarding claims 6, 21 and 33, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1, 16 and 31 above. Jacobsen also teaches wherein providing a focused light source comprises providing a light source containing infrared light ("infrared", col. 6, lines 28-40).

h. Regarding claims 7, 22 and 34, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1, 16 and 31 above. Jacobsen also teaches wherein providing a focused light source comprises providing a light source containing ultraviolet light (col. 7, lines 14-16).

i. Regarding claims 9 and 24, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1 and 16 above. Jacobsen also teaches wherein

positioning a photoconductive layer comprises positioning a selenium layer (col. 6, line 56 through col. 7, line 14).

j. Regarding claims 10 and 25, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1 and 16 above. Jacobsen also teaches wherein positioning a photoconductive layer comprises positioning a layer of photoconductive silicon (col. 6, line 56 through col. 7, line 14).

k. Regarding claims 11 and 26, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1 and 16 above. Jacobsen also teaches wherein positioning a photoconductive layer comprises positioning a layer of cadmium sulfide (col. 6, line 56 through col. 7, line 14).

l. Regarding claims 12 and 27, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1 and 16 above. Jacobsen also teaches wherein positioning a photoconductive layer comprises positioning an organic photoconductor (col. 6, line 56 through col. 7, line 14).

m. Regarding claims 13 and 28, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1 and 16 above. Sheridon also teaches wherein positioning an electrostatic display cell layer comprises positioning a layer of translucent enclosures, each translucent enclosure containing a fluid and an electrically charged material (col. 3, lines 35-46).

n. Regarding claims 14 and 29, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1 and 16 above. Sheridon also teaches

wherein positioning an electrostatic display cell layer comprises positioning a layer of spheres, each sphere being captured in a translucent cell such that each sphere is freely rotatable within the translucent cell, each sphere having one color on the front of the sphere and another color on the back of the sphere, each sphere being electrostatically charged with a charge of one polarity on the front of the sphere and a charge of another polarity on the back of the sphere (col. 3, lines 35-46).

o. Regarding claims 15 and 30, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1 and 16 above. Sheridon also teaches wherein positioning a front plane electrode layer comprises of positioning a front plane electrode layer which is transparent to visible light ("conductor 10' of optically transparent material", col. 3, lines 32-33).

p. Regarding claim 35, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claim 31 above. Jacobsen also teaches wherein the focused light source comprises a light emitting diode array (col. 6, lines 28-40).

q. Regarding claim 36, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claim 31 above. Jacobsen also teaches wherein the focused light source comprises a light emitting polymer array ("infrared", col. 6, lines 28-40).

r. Regarding claim 37, the combination of Sheridon, Jacobsen, and Koshimizu teaches all that is claimed as discussed in the rejection of claim 31 above. Jacobsen also teaches wherein the focused light source comprises a modulated light source ("infrared", col. 6, lines 28-40).

3. Claims 3 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridon in view of Jacobsen and Koshimizu as applied to claims 1 and 16 above, and further in view of Wen et al., US 6,064,410 (Wen).

Regarding claims 3 and 18, the combination of Sheridon, Jacobsen and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1 and 16 above, except stepping advancing the electronic paper line by line.

Wen teaches printing on an electronically addressable medium, including moving the medium (50, Fig. 1) past the printhead (40, Fig. 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Sheridon to advance the electronic paper line by line, because Wen teaches that such a method is well known in the art, and one having ordinary skill in the art would recognize the advantages of such a method, including reduced cost, as a mechanism to move the electronic paper past a stationary printhead would not need to be as complicated or as expensive as one to move a printhead over a stationary piece of electronic paper.

4. Claims 8 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridon in view of Jacobsen and Koshimizu as applied to claims 1 and 16 above, and further in view of Richley , US 5,900,858 (Richley).

Regarding claims 8 and 23, the combination of Sheridon, Jacobsen and Koshimizu teaches all that is claimed as discussed in the rejection of claims 1 and 16 above, except wherein the step of positioning a back plane electrode layer comprises the step of positioning a white back plane electrode layer.

Richley teaches a twisting ball display (10, Fig. 1) which can have a white background sheet (col. 1, lines 35-37).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Sheridon to use a white background sheet, because Richley teaches that a white background sheet for a twisting ball display is well-known in the art, and one having ordinary skill would recognize the advantages of a white background sheet, such as high contrast and ease of reading when using black text.

5. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridon in view of Jacobsen and Koshimizu as applied to claim 31 above, and further in view of Yoshikawa et al., US 4,831,408 (Yoshikawa).

The combination of Sheridon, Jacobsen and Koshimizu teaches all that is claimed as discussed in the rejection of claim 31 above, except wherein the modulated light source comprises a liquid crystal display.

Yoshikawa teaches using light from a laser, LED, LCD, or the like (col. 1, lines 25-30) for radiating energy on a photoconductor for printing images.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Sheridon to use a liquid crystal display, because Yoshikawa teaches that a liquid crystal display is an acceptable alternative to a laser as a source of radiant energy for activating a photoconducting device.

Response to Arguments

6. Applicant's arguments filed 07 December 2004 have been fully considered but they are not persuasive.

7. In response to applicant's argument on page 10 that Koshimizu is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Koshimizu is directed to exposing a photoconductive layer to light, thereby creating a voltage across two electrodes that changes the display characteristics of an electrostatic display element.

8. In response to applicant's arguments on page 10 that there is no suggestion to combine Koshimizu with Sheridon and Jacobsen, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Jacobsen teaches a matrix-addressable light source (col. 4, lines 18-27) for exposing a photoconductive layer to light, thereby creating a voltage across two electrodes that changes the display characteristics of an electrostatic display element. Koshimizu teaches an optically addressed display device, including a laser (16, 22, Fig. 4) which scans (col. 8, lines 21-22) a light modulating element (1, Fig. 3) through a photoconductive element (2, Fig. 3), thereby forming a

static image; that such a system is advantageous for creating a high-speed display which is clear and easy to read, thereby increasing the comfort of the user (col. 1, lines 49-51, lines 55-56). One having ordinary skill in the art at the time the invention was made would have been motivated to try the light exposing system of Koshimizu because it may more economical than a matrix-addressable light source, just as the single, non-addressable electrode of Jacobsen is more economical than the addressable electrodes of Sheridon.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leo T. Hinze whose telephone number is (571) 272-2167. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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AU 2854
28 February 2005